# **2011 6th International ICST Conference on Communications and Networking in China**

# (CHINACOM 2011)

Harbin, China 17 – 19 August 2011

Pages 1-628



IEEE Catalog Number: ISBN: CFP1170A-PRT 978-1-4577-0100-9

## Contents

Preface	XX
Conference Organization	xxii
1. Wireless Communications and Networking Symposium	
WCN01: Wireless Networks	
An improved Multicarrier Differential CDMA System with Synchronization Errors in HF Channels <i>Leizhen Zhou, Minjian Zhao, Jie Zhong, Yunlong Cai</i>	1
	C
Multi-channel CSMA/CA Based Smart Utility Networks Jiyoung Cha, Hu Jin, Dan Keun Sung	6
Spatial Modulation for Single Carrier Wireless Transmission Systems <i>Bin Zhou, Yue Xiao, Ping Yang, Jin Wang, Shaoqian Li</i>	11
Compressed Sensing for Abnormal Event Detection in Wireless Networks Yu Xia, Zhifeng Zhao, Xiao Wang, honggang Zhang	16
A New Joint Feedback And Scheduling Scheme Based On The Users' Satisfaction <i>Ying Yang, Xiaohui Chen, Weidong Wang</i>	21
WCN02: Spectrum and Resource Allocation	
The Concepts of Hybrid-Carrier Scheme Communication System <i>Lin Mei, Xuejun Sha, Qinyu Zhang, Naitong Zhang</i>	26
Time Overhead and Fairness in Spectrum Allocation for Cognitive Radio <i>Yutao Liu, Mengxiong Jiang, Xuezhi Tan</i>	34
Optimal Spectrum Allocation of Primary Users in Light-Handed Cognitive Radio Networks <i>Pengbo Si, Enchang Sun, Yanhua Zhang</i>	39
Improved Subcarrier Allocation in Cooperative OFDMA System Jingning Wang, Xuanli Wu, Xuezhi Tan	45
A Conception on the Terahertz Communication System for Plasma Sheath Penetration <i>Jin Li, Yiming Pi</i>	50
WCN03: Coding and Decoding Technique	
Serially Concatenated Joint Source-Channel Coding for Binary Markov Sources	53
tadashi matsumoto, Xiaobo Zhou, Khoirul Anwar	
A Survey of Error Floor of LDPC Codes <i>Yejun He, Jie Yang, Jiawei Song</i>	61

Low-Complexity Probability Generation Algorithm for Stochastic Decoding of Nonbinary LDPC Codes <i>Baoming BAI, Guanghua He</i>	65
The Joint Optimization of Digital Fountain Coding in Deep Space Communication <i>Gu Shushi, Zhang Qinyu, Zhou Jie</i>	71
Fusion Side Information Based on Spatio-temporal Correlation in Distributed Multi-view Video Coding <i>Qing Huang, Bin Li, Yumei Wang, Lin Zhang, Yu Liu</i>	76
WCN04: Fractional Fourier Transform and Modulation	
A Novel Parameter Estimation Method of Chirp Signal Based on Fractional Fourier Transform <i>Rong Chen, Yiming Wang</i>	82
Anti-interception Communication System based on Double Layers Weighted- type Fractional Fourier Transform <i>Tao Li, Lin Mei, Xuanli Wu, Xuejun Sha, Naitong Zhang</i>	88
Research on Chirp Interference Suppression based on Fractional Fourier Transform <i>Qiming Zhao, Qinyu Zhang, Naitong Zhang</i>	93
Transmission efficient Modulation Based on Constellation Switching in Wireless Communication <i>Wei Lu, Desheng Wang, Yingzhuang Liu</i>	98
Initial Performance Evaluation of Spatial Modulation OFDM in LTE-based Systems <i>Ping Yang, Yue Xiao, Bin Zhou, Shaoqian Li</i>	102
WCN05: PAPR Reduction in OFDM System	
Performance Analysize of Joint Processing of Sidelobe Suppression and PAPR Reduction in NC-OFDM Systems <i>Peng Wei, Lilin Dan, Jin Wang, Yue Xiao, Xu He, Shaoqian Li</i>	108
A Low Complexity Peak-to-Average Power Ratio Reduction Method for OFDM Systems <i>Xing Ouyang, Jiyu Jin, Zhisen Wang</i>	114
An Exhaustive Entropy Based SLM Method for PAPR Reduction of OFDM Systems <i>Lei Ning, Zhenyong Wang, Mingchuan Yang, Qing Guo</i>	118
Diversity-Multiplexing Tradeoff Coordinated Block-Diagonalization Precoding Linan Sun, Xuejun Sha, Zhun Ye, Zhongzhao Zhang	123
An Improved SLM Cascade with Iterative TR Method for PAPR Reduction in OFDM System <i>Dong Hyun Choi, Kyung Hoon Won, Hyung-Jin Choi</i>	127
WCN06: OFDM/OFDMA System	

Utility-Based Joint Routing and Scheduling in OFDMA Cellular Relay132Networks with Traffic Prioritization132

Jian Liang, Hui Yin, Haokai Chen, Zhongnian Li, Shouyin Liu	
Multi-tier Token Based Scheduling Considering QoS and Revenue in OFDMA System	137
Juejia Zhou, Lan Chen, Jianchi Zhu, Liu Liu, Xiang Yun, xiaoming She	
Time-switched Space-time Coded OFDM over Time-varying Channels <i>Jiyu Jin, Guiyue Jin, Zhisen Wang</i>	143
An Improved Channel Estimation Method for NC-OFDM Systems in Cognitive Radio Context <i>Jia Min, Gu Mai, Wu Qun</i>	147
A New Carrier Frequency Synchronization Scheme for OFDMA Downlink of WiMAX <i>Pengcheng Mu, Lichang Xue, Wenjie Wang, Qinye Yin</i>	151
WCN07: OFDM/OFDMA and CDMA System	
A Code Assignment Algorithm for Multi-user/Multi-rate 2-Dimensional Block Spread SC-CDMA <i>Qiyue Yu, Weixiao Meng, Fumiyuki Adachi</i>	156
A Low-Complexity CFO Compensation Scheme for Uplink Interleaved OFDMA Jia Yang, Gang Wu, Xu He, Yue Xiao, Shaoqian Li	161
Instantaneous Channel Fluctuation Based Scheduling for Bursty Traffic in OFDMA System <i>Jianchi Zhu, Xiaoming She, Lan Chen</i>	166
Multiple Doppler Shifts Compensation and ICI Elimination by Beamforming in High-Mobility OFDM Systems <i>Ying Zhang, Qinye Yin, Pengcheng Mu, Lin Bai</i>	170
Performance of Hybrid Carrier DS CDMA Communication System <i>Xin Qiu, Xuejun Sha, Lin Mei</i>	176
WCN08: MIMO System	
Channel Capacity Analysis on Cooperative MIMO with Antenna Spatial Correlation and Multi-path	181
Trungtan Nguyen, Weixiao Meng, Hongyu Wang	
Low Complexity User Scheduling Algorithms for Uplink Multiuser MIMO Systems <i>Liang Li, Ling Qiu, Guo Wei</i>	186
Lower Bound Capacity Based Scheduling in MU-MIMO System Xun Luo, Yang Yang, Zhangcheng Ding, Shu Fang, Shaoqian Li	191
Resource Allocation for MIMO-OFDM Video Transmission Systems Based on Joint Source- Channel Coding <i>Chengwen Zhang, Xin Liu, Xuezhi Tan</i>	196
Upper Capacity Bound and Power Allocation in Polarized Distributed MIMO System <i>Wei Lu, Desheng Wang, Yingzhuang Liu</i>	200

v

### WCN09: Cognitive Radio Networks II

Double-Threshold Cooperative Detection for Cognitive Radio Based on Weighing <i>Xin Liu, Chengwen Zhang, Xuezhi Tan</i>	205
Parameters Optimization for Cooperative Sensing in Multi-Channel Cognitive Radio Networks <i>Wei Yang, Huanzhong Li, Dongsong Ban, Wenhua Dou</i>	210
Cooperative Spectrum Sensing with Diversity Reception in Cognitive Radios Hongjian SUN, Arumugam Nallanathan, Jing Jiang, Cheng-Xiang Wang	216
Cognitive Radio Adaptation Decision Engine Based on Binary Quantum- Behaved Particle Swarm Optimization zheng zhou, Jing Zhang, Wanxin Gao, Yingjie Ma, Yabin Ye	221
Performance analysis for searching delay of secondary users in Cognitive Radios <i>Sheng Wang, Ye Wang, Qinyu Zhang, Yu Fu</i>	226
WCN10: Wireless Sensor and Cognitive Radio Network	
FPGA Implementation of Two Involutional Block Ciphers Targeted to Wireless Sensor Networks <i>Cheng Li, Xueying Zhang, Howard Heys</i>	232
PAPR of Hybrid Carrier Scheme based on Weighted-type Fractional Fourier Transform <i>Lin Mei, Xuejun Sha, Naitong Zhang</i>	237
An Iterative Multiple Primary Users Localization Algorithm Based on Clustering <i>Xing Zhiqiang, Li Wei, Han Qiang</i>	241
An Improved Fuzzy Unequal Clustering Algorithm for Wireless Sensor Network <i>Song Mao, Chenglin Zhao, Zheng Zhou, Yabin Ye</i>	245
PHASE CODED WAVEFORM DESIGN FOR SONAR SENSOR NETWORK Lei Xu, Qilian Liang, Xiaorong Wu, Baoju Zhang	251
WCN11: Positioning	
Intelligent AP Selection for Indoor Positioning in Wireless Local Area Network <i>Zhian Deng, Lin Ma, Yubin Xu</i>	257
Wireless Internet Assisting Satellite Position in Urban Environments <i>Yiming Pi, Pengda Huang</i>	262
Rapid Deployment of APs in WLAN Indoor Positioning System <i>Ying He, Weixiao Meng, Lin Ma, Zhian Deng</i>	268
On the Capacity of Finite-State Channels with Noisy State Information at the Encoder <i>Lin Song, Jun Chen</i>	274

Three-State Semi-Markov Channel Model for HAP-High Speed Train Communication Link	279
Ming Li, Mingchuan Yang, Gu Lv, Qing Guo	
WCN12: Transmission Scheme in LTE	
NACK-based Retransmission Schemes for MBMS over Single Frequency Network in LTE	284
Cheng-Chung Lu, Wen-Ching Chung, Chung-Ju Chang, Fang-Ching Ren	
Load Balancing between TD-SCDMA and GSM Systems with Asymmetric Services	289
Liang Lei, Aiping Huang, Cunqing Hua, Zhouyun Wu, Jun Qian, Liang Shen, Xinwei Chen, Yusheng Zhang	
Modeling and Analysis of SU-CoMP HARQ in 3GPP LTE System Level Simulation	295
Yuan Gao, Yi Li, HongYi Yu, Shihai Gao, Xianfeng Wang	
A Novel MAC Protocol for Mixed Traffics in LEO Satellite Networks <i>Mingxiang Guan, Yuchen Wang, Qing Guo</i>	299
Improved Medium Access Control Schemes for TDD-CDMA Multihop Cellular Networks	304
Xiao Fan Wang, Xue Jun Li, Peter Han Joo Chong	
WCN13: Wireless Sensor and Ad Hoc Network	
Modeling and Analysis of Nodal Behavior in Delay Tolerant Wireless Sensor Networks	310
Luqun Li, Xu Li, Xuemin (Sherman) Shen	
An Energy-Efficient Virtual Cluster Aggregation Algorithm in MAC Design for Wireless Sensor Network <i>Chenguang He, Xuejun Sha</i>	315
A Cooperative Recommendation Trust Model for Ad Hoc Networks Zuhao Liu, Li Yu, Wei Cheng, Ke Wang	319
Relay Searching for Distributed Space-Time Coding in Decentralized Ad hoc Networks	324
Qiyi Caitian, Yongzhao Li, Xinbo Gao, Chen Chen	
Capacity Analysis of Downlink MRT-SC in Distributed Antenna System Zhun Ye, Linan Sun, Qiyue Yu, Zhongzhao Zhang	330
WCN14: Wireless Sensor and Cross Layer Design	
Energy Cost of Cryptographic Session Key Establishment in a Wireless Sensor Network	335
Cheng Li, Xueying Zhang, Howard Heys	
Advanced Sensor MAC protocol to support applications having different priority levels in Wireless Sensor Networks <i>Vintu jose Alappat, Nitish Khanna Khanna, Anoop Kumar Krishna</i>	340
An Energy-Computation-Efficient (ECE) Method for Mobile Localization in Sensor Networks	344
Lingwen Zhang, Gang Yang	

Lingwen Zhang, Gang Yang

Multi-Node-Cooperative AODV Based on Cross-Layer Liang Ye, Deying Chen, Xuejun Sha	350
Cross-layer Design and Performance Comparison of HARQ Schemes with Imperfect CSI In Cooperative Relay Networks <i>Lun Tang, Rongrong Zhang, Qianbin Chen, Xiaoping Zeng</i>	356
WCN15: Beamforming Design	
Multi-stage beamforming codebook for 60GHz WPAN <i>Li Chen, Ying Yang, Xiaohui Chen, Weidong Wang</i>	361
Optimal Cooperative Beamforming Design of AF MIMO Two-Way Relay Channels	366
ZIBIN WANG, LINHUA ZHENG, ZHENDONG ZHOU, YONGHUI LI	054
Combination of Interference Alignment and Beamforming in Cellular Networks <i>chao zhou, wei chen, zhi chen</i>	371
Robust Design for Opportunistic Collaborative Beamforming with Noisy Limited Feedback <i>Lei Wang, Zhiyong Wang, Guo Wei</i>	376
Modulation Recognition for Hybrid Carrier Scheme Based on Weighted-type Fractional Fourier Transform <i>Hong Feng, Lin Mei, Xuejun Sha, Naitong Zhang</i>	381
WCN16: GNSS and Relay Network	
Design of Acquisition Algorithm Based on a Novel Detector for Weak GNSS Signals	384
Yingjie Shen, Minjian Zhao, Jie Zhong, Yunfei Li, Huazi Zhang	
Range Distance Compensation Algorithm for Assisted GNSS Positioning Guanghua Zhang, Weixiao Meng, Jingqiu Ren, Yuwei Shi	390
Real-Time and Fairness Assisted Scheduling in Multiuser Two-Way Relay Network	395
Hui Yin, Jian Liang, Haokai Chen, Zhongnian Li, Shouyin Liu	
Relay Selection with Noisy Limited Feedback <i>Lei Wang, Guangrong Zhang, Guo Wei</i>	400
Under-determined Blind Source Separation Based on Sub-band Division <i>Feng Tao, Zhu Lidong</i>	405
WCN17: Long Term Evolution	
An Adaptive Scheduling Algorithm for Conversational Video Services in LTE System <i>Huali Qi, Ling Qiu, Bao Zhang</i>	410
Combined Fast Link Adaptation Algorithm in LTE Systems <i>Tao Tao, Andreas Czylwik</i>	415
A Lightly-loaded Cell Initiated Load Balancing in LTE Self-Optimizing Networks <i>lin zhang, Mengru Zhang, Shucong Jia, Wenyu Li, Yu Liu</i>	421

Layered Broadcast/Multicast Mechanism for Spectral-Efficient 4G Wireless networks	426
Jingqing Mei, Hong Ji, Yi Li	
Routing Timer Self-Adaptive Regulating Algorithm based on MIMD Loop Control for MANET <i>Danyang Qin, Lin Ma, Xuejun Sha, Yubin Xu</i>	432
WCN18: WLAN and WPAN	
Application of Multi-Cluster-Center Based Filtering in WLAN Indoor Positioning <i>Limin Li, Lin Ma, Yubin Xu, Jiayin Wang</i>	438
An Improved ER Scheduling Algorithm Based Spatial Reuse Scheme for mmWave WPANs <i>Weixia Zou, Yucong Hu, Bin Li, Yabin Ye, Zheng Zhou</i>	442
A New Constrained-send Mechanism to Enhance the Performance of IEEE 802.11 DCF	448
Guo Wang, Xiaofeng Zhong, Shunliang Mei, Jing Wang	
An AP Handover Scheme Using Vehicular Wi-Fi Connectivity <i>Jianwei Niu, Bin Dai, Guoping Du, Chao Tong</i>	453
Understanding Link-level Characterization of Long-Distance 802.11g Semi- urban Links Zhibin Dou, Zenghua Zhao, Quan Jin, Gaotao Shi, Lianfang Zhang, Yantai Shu, Maode Ma	459
WCN19: Detection and Estimation	
Minimum Neighbour with Extended Kalman Filter Estimator (MINEK): Performance Evaluation <i>Micheal Drieberg, Fu-Chun Zheng, Rizwan Ahmad</i>	465
	4=0
Nonquiet Primary User Detection Scheme zheng zhou, Zhaoxia Song, Xuan Sun, Yabin Ye	473
High-resolution TOA estimation for IR-UWB ranging based on low-rate compressed sampling <i>Shaohua Wu, Qinyu Zhang, Haiping Yao, Qiaoling Zhang</i>	478
Timing offset estimation based on novel preamble designs for OFDM system Kanghui Dong, Fang Yang, Lifeng He, Jian Song	484
A Novel ML-Based Frequency Offset Estimator for OFDM Systems Han Jiang, Minjian Zhao, Jie Zhong, Yunlong Cai, Hao Wu	489
WCN20: Delay Tolerant Network	
A General Model for Store-carry-forward Routing Schemes with Multicast in Delay Tolerant Networks	494
Jiajia Liu, Xiaohong Jiang, Hiroki Nishiyama, Nei Kato	
-	501

An Improved Routing Scheme for Relay Enhanced Cellular Networks zhangchao ma, Yu Sheng, Jianquan Wang	507
On the Linear Fractional Shift Invariant Systems Associated With Fractional Fourier Transform Jun Shi, Xuejun Sha, Xiaocheng Song, Naitong Zhang Zhang	511
A Downlink and Uplink Collision Mitigation Scheme for Multi-User MIMO- Based WLANs Through Relaying <i>Hu Jin, Jiyoung Cha, Dan Keun Sung</i>	516
WCN21: Cooperative Relay Systems	
On Performance Bounds of Mixed Amplify-and-forward and Decode-and- forward Cooperative Relay Systems <i>Sheng-Qiang Huang, Hsiao-Hwa Chen, Meng-Ying Lee</i>	521
Multiple-Relay Selection Scheme in Amplify-and-Forward Cooperative System weidang lu, xuanli wu, xuejun sha, naitong zhang	n 528
SER Analysis of Amplify-and-Forward Relay Systems with Beamforming <i>Min Lin, Min Li, Ling Yang, Chun-guo Chang</i>	532
Adaptive Decode-and-Forward Cooperative Diversity with Multiple-antenna Terminals <i>Yuhui Han, Weixiao Meng, Ye Zhang</i>	536
WCN22: Interference Cancellation	
Asymptotic Diversity Order of Single Carrier Cyclic Prefix Systems with Frequency Domain Decision Feedback Equalizers <i>Hui-Ming Wang, Qinye Yin</i>	541
Frequency-domain Iterative Inter-code Interference Combined with Parallel Interference Cancellation for Cooperative-MIMO Multi-code DS-CDMA <i>Bo Liu, Weixiao Meng, Qiyue Yu, Xi Chen</i>	546
A Novel Fractional Frequency Reuse Structure Based on Interference Avoidance Scheme in Multi-cell LTE Networks <i>Lina Liu, Gang Zhu, Di Wu</i>	551
Simulation of Step Frequency SAR Error compensation <i>Yiming Pi, Gang Yao, Jin Li</i>	556
Fractional Fourier Domain Communication System:System Structure and Signal Modeling <i>Yonggang Chi, Shengyu Zhang, Jun Shi</i>	560
WCN23: Network Theory	
A Novel Puncturing Scheme for Rate-Compatible Low-Density Parity-Check Codes Honglin Zhao, Yinuan Chen, Yangkui Ma, Yiangnan Liu	565
Honglin Zhao, Xiyuan Chen, Yongkui Ma, Xiangnan Liu	<b>F</b> 00
Service-aware Proactive Vertical Handoff Algorithm based on Bandwidth Requirement Prediction <i>Jingqing Mei, Hong Ji, Yi Li</i>	569

Clashes of Femtocells with Limited Number of Location Area Codes <i>Yifei Huang, Jason Leung</i>	574
Capacity Results for a Class of Deterministic Z-interference Channels with Unidirectional Receiver Conferencing <i>Nan Liu, Deniz Gunduz, Wei Kang</i>	580
Capacity Limits of Bandlimited Gaussian Channels in Fractional Fourier Domain <i>Naitong Zhang, Jun Shi, Xin Ge, Qinyu Zhang</i>	585
WCN24: QoS Guaranteed and Satellite Communication	
An Improved AQM Scheme with Adaptive Reference Queue Threshold <i>Zhenyu Na, Qing Guo</i>	589
QoS Guaranteed Radio Resource Allocation Scheme using Genetic Algorithm for OFDMA	594
Juejia Zhou, Xiaoming She, Lan Chen, Hiroyuki Otsuka	
Auxiliary Particle Filter-Based WLAN Indoor Tracking Algorithm Junyi Han, Lin Ma, Yubin Xu, Zhian Deng	600
Performance Evaluation and Capacity Analysis for IDMA-based Satellite Communication System <i>Hongdan Wang, Gongliang Liu, Xin Ge, Xingpeng Mao</i>	604
Call Admission Control Scheme for IDMA-based Multi-beam Satellite Systems in the Downlink Direction <i>Xin Ge, Gongliang Liu, Hongdan Wang, Naitong Zhang</i>	609
WCN25: Ad Hoc Networks and MANET	
Multihop Cooperative Communication for Vehicular Ad Hoc Networks <i>Hangguan Shan, Weihua Zhuang</i>	614
A Service-Oriented Dynamic Trust Vector Model for Ad Hoc Networks Li Yu, Fei Xiong, Wei Cheng, Wei Wang, Hui Li	620
Reseach on Mobile Hidden Station for Weighted Clustering Algorithm in MANET System <i>Na Zhang, Ningqing Liu, Meng Wu, Weixiao Meng</i>	625
Concatenation-Assisted Symbol-Level Combining Scheme Based on LR for MIMO Systems with ARQ <i>Bin Zheng, Hui Zhao, XIaoping Zhou, Wenbo Wang, Bin Wu</i>	629
Research on image transmission equalized by dual-mode blind algorithm <i>Baoju Zhang, Wei Wang, Ruijuan Wang</i>	634
WCN26: Cognitive Radio Networks I	
A Blind Spectrum-Sensing Method Based on Bartlett Decomposition <i>Qi Ding, Weixia Zou, Zheng Zhou, Bin Li, Yabin Ye</i>	639
A Novel Spectrum Handoff Management Scheme based on SVM in Cognitive Radio Networks <i>Jinghua Guo, Hong Ji, Yi Li, Xi Li</i>	645

Traditional Distributed Power Control Algorithms for Cognitive Radio Network	650
Mohamed Elalem, Lian Zhao	
Study on the Capacity of Distributed Antenna Network System by using Single Carrier Frequency Domain Adaptive Antenna Array <i>Wei Peng, Fumiyuki Adachi</i>	655
Generalized Sampling Theorem for Bandpass Signals Associated With Fractional Fourier Transform Jun Shi, Xuejun Sha, Qinyu Zhang, Naitong Zhang	659
WCN27: Vehicle-to-Infrastructure Communication Networks	
A Busy Tone based Medium Access Control Scheme over Vehicle-to- Infrastructure Communication Networks <i>Yuanguo Bi, Lin Cai, Xuemin Shen, Hai Zhao</i>	663
Mobility and QoS oriented 802.11p MAC scheme for Vehicle-to-Infrastructure communications <i>lin zhang, zi Wang, Yu Liu, Teng Jiang</i>	669
Performance of Broadcast Transmission from Multiple Vehicles in Vehicle- Roadside-Vehicle Relay Network <i>Kazuya MINATO, Huiting CHENG, Yasushi YAMAO</i>	675
A Novel Hybrid Routing Protocol for Vehicular Ad-hoc Network <i>Van Minh Le, Mingchuan Yang, Qing Guo</i>	680
A Novel Medium Access Control (MAC) Protocol for VANETs Lian Zhao, Khalid Abdel Hafeez, Zaiyi Liao, Bobby Ngok-Wah Ma	685
WCN28: Network Coding and Heterogeneous Networks	
Network coding-aware cache replacement policy in on-demand broadcast environments <i>Jun Chen</i>	691
Joint Distributed Source and Network Coding for Correlated Information Multicasting <i>Shaoshuai Gao</i>	698
Load Balancing Algorithm with Multi-Service in Heterogeneous Wireless Networks <i>Jin Sun, Wuanli Wu, Xuejun Sha</i>	703
Energy Efficiency Improvements Through Heterogeneous Networks in Diverse Traffic Distribution Scenarios <i>Sibel Tombaz, Muhammad Usman, Jens Zander</i>	708
An Optimal IASA Load Balancing Scheme in Heterogeneous Wireless Networks <i>Rong Chai, Xiaoyu Dong, Jie Ma, Qianbin Chen</i>	714
A heterogeneous wireless network selection algorithm based on non- cooperative game theory <i>Yang Cui, Yubin Xu, Rongqing Xu, Xuejun Sha</i>	720

### 2. Frontiers on Communications and Networking Symposium

FCN01: Topology Theory	
Network Soft Partition Based on Topological Potential Jianpei Zhang, Hongbo Li, Jing Yang, Jinbo Bai, Yan Chu	725
A New In-domain Interconnected Architecture Based On Tree-based Topology <i>Cheng Yang, Zhenhua Liu, Du Xu</i>	730
Topology Design of Industrial Ethernet Networks Using a Multi-objective Genetic Algorithm <i>Lei Zhang, Mattias Lampe, Zhi Wang</i>	735
Physical-aware Topology Construction and Importance of underlying topological Information in Provider-independent Overlays <i>Xian Zhang, Chris Phillips</i>	742
Subpattern Complete Two Dimensional Locality Preserving Principal Component Analysis and Its Application to Gait Recognition <i>Xianye Ben, Shi An, Weixiao Meng, Ze Wang</i>	747
FCN02: New Service and Technique on Communication	
A Wavelength Assignment and Traffic Control Scheme in Reservation Slotted OBS Rings <i>Wen-Shiang Tang, Yao-Ting Hsieh, Chung-Ju Chang, Wen-Ching Chung</i>	753
LMMSE Channel Estimation Algorithm Based On Delay Time-domain Windowing In AF Cooperative Systems Xuanli Wu, Kai Liu, Mingxin Luo, Qinghua Shen	760
Virtual Network Mapping Algorithm for Large-scale Network Environment <i>shunli zhang, Xue-song QIU, Luo-ming MENG</i>	765
A Novel Traffic Analysis Method For PoC over LTE Based on Retrial Calling Model <i>Lin Ma, Shouming Wei, Wei Qiang</i>	771
Influence of Aberrations of Receiver Antenna on Heterodyne Efficiency in Free-space Optical Communications Based on Heterodyne Detection <i>Qingbo Yang, Liying Tan, Jing Ma</i>	776
FCN03: Computer Network	
Modeling and Analysis of Free Riding in Peer-to-Peer Streaming Systems <i>Qi Liu, Fenglin Qin, Liansheng Ge</i>	780
A Federated Identity Management System with Centralized Trust and Unified Single Sign-On <i>Jian Jiang, Haixin Duan, Tao Lin, Fenglin Qin, Hong Zhang</i>	785
Community Identification Based on Clustering Coefficient Jinbo Bai, Hongbo Li, Yan Chu	790
Blind Source Separation Based On Compressed Sensing Zhenghua Wu, Yi Shen, Qiang Wang, Jie Liu, Bo Li	794

Modeling TCP Performance in Reordering and Lossy Networks <i>wei xu, yinlong xu, xiaohu wu</i>	799
FCN04: Network Mobility	
A Caching Strategy in Mobile Ad Hoc Named Data Network <i>Yuguang Zeng, Xiaoyan Hong</i>	805
Mobility Management Based on HIP-NEMO <i>Qianbin Chen, Haijun Hu, Rong Chai, Tao Dong</i>	810
Planning the Mobility of Routing Ferries for Intermittently Connected Mobile Networks Zhijun Li, Chaumy Jiang	816
Zhijun Li, Shouxu Jiang	
A New Improved MAC Scheme: RM-MAC wenbin zhang, xiaozong yang, shaochuan wu	822
Optimal Packet Size Design for Multimedia Transmissions in Cognitive Radio Networks	827
Xin-Lin Huang, Gang Wang, Fei Hu, Sunil Kumar, Ye Zhang	
FCN05: Network Security and Network Coding	
End-to-End Performance of Network with Coding-Aware chen yanping, huiqiang wang, guangsheng feng, yulong gao	831
Protocol Derivation System for the Needham-Schroeder Family Junwei Zhang, Chao Yang, Jianfeng Ma	836
Statistical Analysis Of Error Patterns in Block Ciphered Crypto-System <i>Qiuhua Yang, Jian Wang, Shuangqing Wei, Jian Yuan</i>	841
Multipath Interference Analysis of IR-UWB Systems in Indoor Office LOS Environment <i>Chao Luo, Xuanli Wu, Yang Cao</i>	846
Partial Template Based Receiver in Impulse Radio Ultra-Wideband Communication Systems Yang Cao, Chao Luo, Xuanli Wu	851
On Realizing Optical CDMA Signatures Reconfiguration with Composite coded	855
Waveguide Grating Jen-Fa Huang, Yao-Tang Chang, You-da Dai	
3. The Internet of Things and Applications Symposium	
IOT01: Internet and Application	
An Efficient Power Allocation Algorithm with Fairness Constraints in Cognitive OFDMA System	859
Lu Ye, Zhaoyang Zhang, Zhipeng Zhang, Benkang Gong, Lianxiang Wang	
Cell Coverage Analysis of Existing Network and Advanced Testbed Network Xiaohang Chen, Li Chen, Bin Wang, Xin Zhang, Lijun Zhao, Peng Dong, Jia Kong	864

Compensative Mechanism Based on Steerable Antennas for High Altitude Platform Movement <i>Hui Li, Xin Xu, Mingchuan Yang, Qing Guo</i>	870
Design and Implementation of Cloud-based Performance Testing System for Web Services <i>Zhang Li, Chen hui, Tang Fan, Xiong Ao</i>	875
A Distributed Self-Deployment Method for Coverage Optimization in Mobile Sensor Network <i>Zhiliang Tu, Qiang Wang, Yi Shen</i>	881
4. Implementations and Testbeds Symposium	
IAT01: Improved Schemes in Communication Systems I	
An Efficient Fast Handoff Scheme with Network Mobility in Heterogeneous Networks <i>Baojiang Wu</i>	887
A tractable mechanism for external calibration in non-overlapping camera network <i>qiang wang, Yan Liu</i>	893
Performance Evaluation of Channel Coding and Aperture Averaging for the Satellite-To-Ground Optical Communications with APD Receivers <i>Huixi Liao, Qingjun Zhang, Jing Ma, Liying Tan</i>	899
PERFORMANCE ANALYSIS OF MULTIPLE ANTENNA SYSTEMS WITHIN DIFFERENT TECHNIQUES Varsha Rao Bolar, Qilian Liang, Lei Xu, Xiaorong Wu, Baoju Zhang	903
High-gain Planar TEM Horn Antenna fed by Balanced Microstrip Line Shu Lin, Xinyue Zhang, Xingqi Zhang, li wei	909
IAT02: Improved Schemes in Communication Systems II	
Asymmetrical Handover Algorithm for Broadcast Services in Broadband Wireless Multimedia Systems <i>Min Wang, Chunyan Feng, Tiankui Zhang</i>	913
The Data Processing Method of FY-3 Meteorological Satellite <i>Xiao Hong Tang, Zhaohui Cheng</i>	918
Analysis and Design of Plasma Monopole Antenna <i>li wei, Jinghui Qiu, Shu Lin, Ying Suo</i>	921
Design of High Sensitivity GPS Signal Acquisition Circuit with New Frequency Domain Search Strategy <i>zou deyue, Wenjing Wang, Shuai Han, Weixiao Meng</i>	925
Multiband Printed Monopole Antenna with Square-Nested Fractal <i>Lina Wang, Shu Lin, li wei</i>	929

### 5. Special Sessions

#### SS01: Cognitive Radio testbeds

Fully Reconfigurable Cognitive OFDMA Testbed Lianxiang Wang, Zhaoyang Zhang, Lu Ye, Benkang Gong, Wentao Lou	933
The UESTC Reconfigurable Cognitive Radio Testbed zhaojun he, tian liu, youxi tang, qiang xu, wensheng pan	939
A Novel Design of Cognitive Wireless Networks-Architecture and Testbed Zhiyong Feng, Fenglin Xie, Yiyi Chen, Xun Wang, Xin Chen	944
Interference Sensing using CORAL Cognitive Radio Platforms Rukhsana Ruby, Salim Hanna, John Sydor, Victor Leung	949
A New HF Radio Prototype Based on Dynamic Spectrum Anti-Jamming Concept Viebas Zhu, Bing Wang, Viennun Lu	955
Yichao Zhu, Ping Wang, Jianxun Lu	
SS02: Compressive Sensing	
A Novel Compressed Collaborative Sensing Scheme using LDPC Technique Xuan Sun, Zheng Zhou, Lei Shi, Weixia Zou	959
Compressive Sensing Based Sparse Event Detection in Wireless Sensor Networks	964
Wenjie Yan, qiang wang, Yi Shen	
Cognitive Radio Ultra-Wideband Channel Allocation Based on Sparse Channel Model <i>Lei Shi, Zheng Zhou, Xuan Sun, Yingjie Ma</i>	970
	074
A Multi-Template Deconvolution Algorithm based on Compressed Sensing for UWB Channel Modeling <i>Dejian Li, Zheng Zhou, Bin Li, Weixia Zou</i>	974
Compressive Sensing for Sense-Through-Wall UWB Noise Radar Signal Ji Wu, Qilian Liang, Zheng Zhou, Xiaorong Wu, Baoju Zhang	979
SS03: Wireless Optical	
Design of Fiber-optic CoMP and Relaying for Smart and Broadband Distribution Networks	984
HIROYUKI OTSUKA, Yukihiro Sakamoto, Akiyuki Nakajima	
Seamless Handover in Integrated WDM/TDM PON and WiMAX Architecture <i>Shiliang Li, Kejie Lu, Yinlong Xu</i>	989
All-optical VPN in optical OFDMA-based PON for integration of optical and wireless networks (Invited) <i>Chongfu Zhang, Jian Huang</i>	997
ONU Patching for Efficient VoD Service over Integrated Fiber-Wireless (FiWi) Access Networks <i>Yun Xu, Yan Li</i>	1002
Cost-effective Multilayer Network Optimization:A top down decomposition solution <i>Hongfang Yu, Xiaoning Zhang, Li Wang, Vishal Anand</i>	1008

Network Coding-Based 1+N Protection Scheme in Hybrid Wireless-Optical Broadband Access Networks	1013
Shifang Dai, Jin Wang, Xinming Zhang, Shiliang Li	
SS04: Hot Topics on Internet of Things	
Layered Fault Management Scheme for End-to-end Transmission in Internet of Things <i>Xi Li, Hong Ji, Yi Li</i>	1021
An IOT System for Environmental Monitoring and Protecting with Heterogeneous Communication Networks <i>zhang le</i>	1026
Road Condition Monitoring Using On-board Threeaxis Accelerometer and GPS Sensor	1032
Kongyang Chen, Mingming Lu, Xiaopeng Fan, Mingming Wei, Jinwu Wu	
SS05: Underwater Communications and Networking	
Improving Aloha via Backoff Tuning in Underwater Sensor Networks Jun-Hong Cui, Nianmin Yao, Michael Zuba, Zheng Peng	1038
Adaptive Routing in Underwater Delay Tolerant Sensor Networks Zheng Guo, Zheng Peng, Bing Wang, Jun-Hong Cui, Jie Wu	1044
Single Carrier FDMA over Underwater Acoustic Channels <i>Xilin Cheng, Fengzhong Qu, Liuqing Yang</i>	1052
Localization and Tracking of Underwater Physical Systems Patrick Carroll, Shengli Zhou, Hao Zhou, Jun-Hong Cui, Peter Willett	1058
6. Workshop on Satellite Communications (SATCOM)	
Study on Orthogonal IGSO Global Communication Satellite Constellation <i>yong jiang, Gengxin Zhang, Sen yang, Guangxia Li, Zhidong Xie</i>	1064
A Concatenated Coded Modulation Scheme and Its Iterative Receiving for Deep Space Communications <i>Gengxin Zhang, Dongming Bian, Jing Hu, Zhidong Xie, Qian Sun</i>	1069
Hybrid-LFM Signal Design and Detection Performance Analysis for Formation Flying Satellite Radar System <i>zong zhulin, Hu Jianhao, Zhu Lidong, Jia Haitao</i>	1074
Generalized MIMO Channel Model and Its Capacity Analysis in Formation Flying Satellite Communication Systems <i>Zhang Lei, Zhu Dong, Ju Cheng</i>	1079
Application of Residue Number Systems to Bent-Pipe Satellite Communication Systems <i>Wenhui Yang, Ming Zhao, Xiang Chen, Lianfen Huang, Jing Wang</i>	1083
An Improved Symbol Timing Error Detector for QPSK Signals Desheng Shi, Chaoxing Yan, Nan Wu, Hua Wang, Jingming Kuang	1088
Security Architecture for Satellite Services over Cryptographically Heterogeneous Networks	1093
Haitham Cruickshank, Yingli Sheng, Martin Moseley, John Ashworth	

Performance Analysis of Two-Way Relaying Satellite Mobile Communication <i>Ji Baofeng, Huang Yongming, Wang Haiming, Yang Luxi</i>	1099
Redesigning of IPSec for interworking with Satellite Performance Enhancing Proxies Haitham Cruickshank, Muhammad Nasir Mumtaz Bhutta, Martin Moseley, John Ashworth	1104
The Development of Satellite Mobile Communication System <i>Xuan Feng, Qiang Tan, Zongchuang Liang</i>	1110
Multi-Layer Beam Architecture in Mobile Satellite Communications Fei Yang, Meiyu Huang, Sihai Zhang, Wuyang Zhou	1115
7. Workshop on Network Coding in Wireless Relay Networks (NRN)	
Network Coding with Relay Assistance in Multi-rate Wireless Networks <i>Meng Huang, Gang Feng, Yide Zhang</i>	1120
Efficient Retransmission with Network Coding for Multiple Flows in Wireless Networks Zhiheng Zhou, Liang Zhou, Feng Gang	1126
A Network Coding Scheme for the Multiple Access Full-Duplex Relay	1132
Networks	1152
Zongyan Li, Mugen Peng, Wenbo Wang	
A Nash Equilibrium based Fair User Pairing Algorithm for the Cooperative Network Coding in Multiple Access Relay Systems <i>Xinqian Xie, Mugen Peng, Zhongyuan Zhao, Xiaodong Ji, Wenbo Wang</i>	1137
Reliable and Energy-Efficient Multicast Based on Network Coding for Wireless Sensor Networks <i>Xing Wang, Yuanquan Tan, Zhiheng Zhou, Liang Zhou</i>	1142
Adaptive Physical Layer Network Coding <i>Ture Peken, Umit Aygolu</i>	1146
NoC architecture with Local Bus Design for Network Coding <i>Jianhao Hu</i>	1151
An Upper Bound on Broadcast Subspace Codes Codes <i>Thomas Honold, Yimin Pang</i>	1155
Optimization Based Queue Management for Opportunistic Network Coding <i>Qinglong Liu, Gang Feng</i>	1159
Performance Analysis of Cooperative Transmission in Multiple-Access Relay Networks over Nakagami Fading Channels <i>Chunlei HAN, Jianhua GE, Jing LI, Yang GAO</i>	1165
Using Network Coding to Improve Robustness and Persistence for Data Transmission in Sensor Networks <i>Yang Chen, Gang Feng, Liang Zhou</i>	1170
8. Workshop on Wireless Communications for High Speed Rail (HSRCOM)	

# A Novel Video Monitoring System in High-Speed Railway1176Haoyi Shi, Hao Wu, Hengliang Tang, Shiya Wen1176

Analysis and Emulation of the Small-Scale Fading Characteristics in the High- Speed Rail Scenarios <i>Linyi Gao, Zhangdui Zhong, Bo Ai, Lei Xiong, Haoxiang Zhang</i>	1181
Performance Evaluation of Water-filling Capacity in High Speed Railway Scenario	1186
Jinlong Qian, Zhangdui Zhong, Lei Xiong, Binghao Chen	
Modeling and Analysis of Dynamic Spectrum Allocation in High-Speed Railways <i>Liang Chen, Hong Ji, Yi Li, Xi Li</i>	1191
Spring Model-Based Call Admission Control Mechanism for High-Speed Railway Environment <i>Yisheng Zhao, Xi Li, Hong Ji</i>	1196
The Effect of Reference Distance on Path Loss Prediction Based on the Measurements in High-Speed Railway Viaduct Scenarios <i>Ruisi He, Zhangdui Zhong, Bo Ai, Lei Xiong, Jianwen Ding</i>	1201
Hard-in-the-loop Simulation of High-speed Railway Mobile Communication Mingwei Zhu, Zhangdui Zhong, Lei Xiong, Jianwen Ding, Siyu Lin	1206
A Modified Algorithm of Synchronization Signal Detection for LTE Initial Cell Search	1211
Yukai Gao, Gang Zhu, Xia Chen, Di Wu, Buri Ban	
Study on the Shadow Fading Characteristic in Viaduct Scenario of the High- speed Railway <i>Hong Wei, Zhangdui Zhong, Lei Xiong, Bo Ai, Ruisi He</i>	1216
A Hardware-in-the-loop Simulation Method of the Network Performance of High-speed Railway Mobile Communication System <i>Kaifeng Lin, Zhangdui Zhong, Lei Xiong, Siyu Lin</i>	1221
A Wireless Hybrid Diversity Strategy for Heavy Haul Railway Transportation System <i>Jianfei Cao, Zhangdui Zhong, Xia Chen</i>	1226
9. Workshop on Advances in Data and Information Management (ADIM)	
QoS-aware Service Composition in Multi-Network Environment based on Genetic Algorithm <i>Minghui Li, Kaigui Wu, Lu Liu</i>	1231
A Hash-based Secure Interface on Plain Connection Zhenxing Liu, Harjinder Lallie, Lu Liu, Yongzhao Zhan, Kaigui Wu	1236
Cloud Computing Privacy & Security-Global Issues, Challenges, & Mechanisms Saleem-ullah Lar, Xiaofeng Liao, Syed Ali Abbas	1240
A Dynamic Reliability Maintenance Method for Online Software System <i>Lei Chen, Kaigui Wu, Xiaoyu Yang</i>	1246
Near-optimal Configuration of Service Pool Size in Service Composition <i>Pan He, Kaigui Wu, Qi Xie, Jie Xu</i>	1252